

XV. *A Contribution to the Classification of the Coleopterous family Dynastidæ.* By GILBERT J. ARROW, F.E.S.

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THE Dynastidæ flourish most in the New World, they are fairly well represented in Australia, but appear to be least numerous in the Oriental Region and particularly upon the Continent of Asia. As those which do occur are generally abundant and attract attention by their forms and size it is strange that this sufficiently small group has been little studied as regards classification. The American species by their numbers and difficulty rather repel systematic workers, and the Australian and African representatives have received considerable attention in recent times, but the Asiatic species have been neglected and their classification is in considerable confusion, rendered greater by the fact that some of the old genera in which they are included have been divided and reconstituted as regards species from other regions. The present paper, although it contains descriptions and synonymical notes based upon specimens in the British Museum from all parts of the world, deals more especially with Oriental representatives of the family. All the new species described here are represented in the British Museum collection.

The Oriental species at present standing in the genus *Heteronychia* are in urgent need of revision. Many African species formerly placed in the genus have been formed into new genera by Messrs. Kolbe and Péringuey, and those that remain from that region form a fairly homogeneous series, but this is by no means the case with the Oriental species. One of the most distinctive features of the genus is the peculiar smoothness of the pronotum, which is without trace of elevation or depression behind the head and entirely, or almost entirely, without puncturation. This characteristic is accompanied by a form which is not highly convex, by the presence of a pair of stridulating files upon the propygidium, and, in the male, by the thickening of the anterior tarsus and enlargement of its inner claw, which has a very broad basal

tooth. In all other respects the genus agrees with *Pentodon*, the front tibiæ have several secondary denticles in addition to the three strong teeth, the hind tibiæ are truncated and setose and the mandibles are deeply notched externally. This definition (which is not materially different from that of Lacordaire), although it fits the African and Madagascan species, excludes most of the Asiatic ones at present assigned to *Heteronychus*. These are *H. morator* and *piceus*, F., *javanus* and *pauper*, Burm., *simplex*, Waterh., *annulatus* and *propygidus*, Bates, *Lansbergi*, Schauf., *deserti*, Heyd., and *bidentulus*, *cribratellus*, *curtulus*, *interruptus*, *monodon*, *punctolineatus* and *sumatrensis*, Fairm.

In addition to the above *H. cribratellus*, Fairm., another species was described from Egypt by the same author under the same name and in the same year. This M. Bedel has already found to be a synonym of *Pentodon syriacus*, Kraatz, and *H. bidentulus* he has rightly referred to the same genus. *H. deserti*, Heyd., may also be a species of *Pentodon*. It is not a *Heteronychus*. The Oriental *H. cribratellus* is one of a group of species in which the pronotum is distinctly punctured and sometimes slightly impressed in front, and in which the front tarsi are not thickened in the male, and for these it is necessary that a new genus should be formed. It may be defined as follows:—

#### ALISSONOTUM, n. gen.

Mandibles strongly notched externally. Clypeus attenuated and bidentate at the end, bearing behind a transverse bi-tuberculate carina. Pronotum distinctly punctured, sometimes slightly impressed at the middle in front, not closely fringed at the sides. Front tibiæ 3-dentate, with minute secondary denticles. Front tarsi and claws not thickened in the male. Propygidium bearing two microscopic stridulating files.

Only the last feature and the strongly striated elytra clearly distinguish this genus from *Pentodon*. In that there are sometimes traces of a double series of ridges upon the propygidium but the files are always very coarse and imperfect and the ridges do not nearly reach the hinder margin of the segment. The recognised species of *Pentodon* are very homogeneous in size and form and are essentially Palæarctic in distribution, whereas the present

group consists of smaller species of rather varied form and is apparently confined to Tropical Asia. The type species is *Heteronychia piccus*, F. (= *Phileurus detractus*, Walk.), and I refer to it also *H. cribratellus*, Fairm., *H. pauper*, Burm. (= *H. simplex*, Waterh. and *H. interruptus*, Fairm.) and the following new species:

*Alissonotum crassum*, sp. n.

Robustum, ovatum, nigrum aut nigro-piceum, capite crebre punctato-rugoso, fronte sat fortiter bituberculato; prothorace fortiter et crebre punctato, medio lævius, disco antice lævissime impresso et tuberculato; scutello impunctato; elytris fortiter striatis, stria prima vix punctata, cæteris grosse irregulariter punctatis, interstitio primo confuse punctato, 3° et 5° partim seriato-punctatis, lateribus minute, apicibus grosse et crebre, punctatis; propygidio leviter rugoso, postice medio producto; pygidio parce punctato.

Long. 19-21 mm. Lat. max. 11 mm.

*Hab.* ASSAM: Silhet; BURMA: Bhamo, Tenasserim.

This is a large, black, oval insect. The head is coarsely rugose and bituberculate above. The prothorax is closely punctured, the punctures being coarse except along the middle, where they are fewer and finer. There is a faint impression near the middle of the anterior margin and a minute elevation in front of it. The scutellum is broad and smooth. The elytra are deeply striated, the sutural stria being scarcely punctured and the remainder rather strongly. The first interval is very broad and irregularly punctured and the 3rd and 5th have each an incomplete line of punctures. The outer margins are finely, and the extremities coarsely, punctured. The propygidium is produced in the middle and bears two long and finely striated files. The remainder of the surface is finely rugose and pubescent. The pygidium is rather finely punctured. The sexes are alike.

*Alissonotum impressicolle*, sp. n.

Ovatum, nigrum, nitidum, capite crebre rugoso, bituberculato; prothorace fortiter haud dense punctato, medio subtilius, antice lævissime impresso et elevato; scutello impunctato; elytris fortiter punctato-striatis, striæ primæ punctis toto confluentibus, interstitio primo irregulariter, 3° et 5° lineare, punctatis, lateribus et apicibus

crebre punctatis; propygidio postice leviter producto, pygidio sat grosse punctato.

Long. 14 mm. Lat. max. 8 mm.

*Hab.* BURMA: Bhamo, Teinzo (*L. Fca.*).

This is almost of the same size and shape as *A. piccum*, F., but a very little larger and more elongate. It is black and shining with the legs and underside piceous. The head is closely rugose, bituberculate in front and armed on the vertex with two tubercles placed moderately far apart. The prothorax is very distinctly but very closely punctured, the punctures being finer in the middle. There is a faint impression just behind the middle of the front margin and a slight elevation in front of it. The scutellum is broad and unpunctured. The elytra have each a very deep, not distinctly punctured, sutural stria and four pairs of strongly punctured striæ, the 1st and 7th interstices being irregularly punctured and the 3rd and 5th having each an incomplete line of punctures. The outer and apical margins are strongly and closely punctured. The propygidium is slightly produced and bears a pair of fine and moderately broad files. The pygidium is strongly but not closely punctured. The sexes are alike.

So far as can be judged from the descriptions, two species from Kashmir, strangely ascribed by Fairmaire to *Phileurus* (*P. binodulus* and *curtipennis*, Fairm.) also belong to this genus.

For *Heteronychus monodon*, Fairm., and certain other undescribed species, I have found it necessary to make another new genus.

#### MICRORYCTES, n. gen.

Clypeus attenuated in front, with the margin feebly notched and reflexed. Mandibles strongly notched externally. Front transversely carinate with a single slight median tubercle. Prothorax simple, punctured and bearing a rather long hairy fringe at the sides. Elytra membranous at the apical margins. Front tibiæ 3- or 4-dentate, without intermediate denticles. Front tarsi slender and claws equal in both sexes. Propygidium without paired stridulating files.

#### *Microrycles kanarensis*, sp. n.

Niger, nitidus, elongatus, capite crebre punctato-rugoso, antice



anguste rotundato, lævissime bifido, carina transversali frontali vix distincta, medio minute tuberculato, prothorace quam latitudine paulo brevior, toto simplice, disco vix perspicue, lateribus fortiter sat grosse punctatis; scutello lævi, medio sulcato; elytris profunde sat regulariter striato-punctatis, interstitiis omnibus impunctatis, lateribus postice apicibusque grosse et irregulariter punctatis, margine apicali prope angulum paulo abbreviato, appendice membranaceo distincto munito; propygidio parce punctulato et setoso, pygidio fortiter sat crebre punctato; tibiis anticis 4-dentatis.

Long. 15 mm.

*Hab.* S. INDIA: Kanara.

It is rather elongate, black, shining and strongly sculptured. The head is strongly and rugosely punctured, with the front of the clypeus feebly bifid and the frontal tubercle not very strong. The prothorax has very minute scattered punctures on the disc, and these become rather abruptly coarse at the sides. The scutellum is unpunctured and longitudinally impressed down the middle. The elytra are very strongly striate-punctate, all the interstices being unpunctured and nearly equal, except the juxta-sutural strip, which is narrow. The sides and apices are strongly and irregularly punctured. The apical margins are slightly truncated obliquely at the inner half and continued on a membranous flange. The propygidium is very finely and sparingly punctured and the pygidium very coarsely and thickly. The front tibiæ are furnished with three strong pointed teeth and a vestige of a fourth upper one.

Two female specimens were collected by Mr. T. R. D. Bell.

*Microrhynchus apicalis*, sp. n.

Parvus, sat elongatus, niger, nitidus, corpore subtus rufo-piceo, capite crebre punctato-rugoso, antice anguste rotundato, lævissime bifido, carina frontali transversali medio leviter tuberculata; prothorace sat angusto, angulis anticis paulo productis, posticis haud late rotundatis, disco minnte, lateribus fortiter sat grosse punctatis; scutello lævi, medio sulcato; elytris profunde striatis, striis latis, confuse punctatis, lateribus postice apicibusque grosse irregulariter punctatis, apicibus conjunctim sat profunde emarginatis, appendicibus membranaceis; propygidio minute irregulariter strigoso, parce

setoso; pygidio grosse et crebre punctato; tibiis anticis acute tridentatis.

Long. 11·5 mm.

*Hab.* BURMA: Carin Cheba (*Fca.*).

Two specimens, both males, were found at an altitude of 900–1,100 m. in December 1888.

The species is very like the preceding but smaller and the prothorax is relatively narrower, the front angles sharper and the hind angles less broadly rounded. The elytra are very coarsely and deeply punctate-striate and the membranes to which their apices become abruptly reduced are broad and conspicuous. The pygidium is very strongly punctured and the front tibiæ sharply tridentate, without trace of an additional tooth as in the other two species.

*M. monodon*, Fairm., was described from Cochin China but two specimens brought by Signor Fea from Rangoon are almost certainly indistinguishable from it. The membranous apices of the elytra, which are the most peculiar feature of the genus, are not mentioned by Fairmaire, but in this species they are so slight as not to attract attention.

Of the remaining Oriental forms attributed to *Heteronychus*, *H. morator*, F., *javanus*, Burm., *sumatrensis*, Fairm., and *Lansbergei*, Schauf., are obviously very distinct from it. The last is unknown to me, but the others are congeneric, and for these and other species undescribed I constitute the following new genus:—

#### PSEUDOHOMONYX, n. gen.

Mandibles broad, prominent, not acuminate; rounded or gently sinuated at the side. Maxillæ armed with four strong equal teeth. Labium smooth, sulcate behind, broad and sinuated in front, with the palpi inserted at the margins. Clypeus trapeziform, straight in front, with the angles rounded. Head entirely unarmed in both sexes. Prothorax regularly rounded at the sides, with the posterior angles completely rounded off. Propygidium without stridulating files. Legs very spinose, with the tarsi slender but not long. First joint of the hind tarsus elongate. Front tibia strongly tridentate: middle and hind tibiæ flattened, gently crenate and strongly spinose at the extremity,

♂. The prothorax is impressed in front and there is a median tubercle just behind the front margin. The front tarsi are thickened and the inner claw very broad.

The type species is the following :—

*Pseudohomonyx borneensis*, sp. n.

Niger, nitidus, elongatus, subtus rufo-hirtus, capite rugoso, medio leviter transversim impresso; prothorace minutissime punctato, parum convexo, basi utrinque leviter impresso; scutello minutissime punctato; elytris fortiter striatis, striis crebre annulato-punctatis, interstitiis dorsalibus convexis, haud perspicue punctatis, lateribus atque apicibus grosse ac crebre punctatis; propygidio subtiliter pygidioque fortiter et confluentur punctatis:

♂, prothorace antice leviter longitudinaliter impresso, margine medio vix tuberculato.

Long. 19-23 mm.

*Hab.* BORNEO: Sarawak; LABUAN.

This was taken by Dr. A. R. Wallace in Sarawak and by Mr. Hugh Low in Labuan. In size, shape and sculpture it closely resembles *Pseudohomonyx morator*, F. (of which I believe *Heteronychus javanus*, Burm., to be a synonym), but it differs in the very close and strong puncturation of the sides and apices of the elytra and the pygidium and in the less broad and deep anterior impression of the prothorax and feebler marginal tubercle in the male.

There are two other species in our collection from the same region, but as both are represented by single specimens only I prefer for the present to leave them undescribed.

The process of elimination has thus reduced the number of Oriental forms properly referred to *Heteronychus* to four, viz. *H. poropygus*, Bates, *annulatus*, Bates, *curtulus*, Fairm. and *punctolineatus*, Fairm.; and to these must be added "*Phileurus*" *sublaevis*, Fairm., of which M. Lesne has kindly examined the type for me.

The species is a common and widely distributed one, but Fairmaire's description, in the statement that there are no stridulating organs and in other particulars, is so misleading that I have redescribed it here,

*Heteronychus sublævis*, Fairm.

Bull. Soc. Ent. Belg., 35, 1891, p. 123.

Niger, nitidus, ovatus, capite rugoso, clypeo sat lato, medio bidentato, fronte bituberculato, prothorace fere lævi, lateribus arcuatis, antice paulo approximatis, angulis acutis; scutello lævi; elytris sat grosse striato-punctatis, linea suturali subobsoleta, lineis 4 discoidalibus postice abbreviatis, 4 lateralibus integris punctisque irregularibus; propygidii lineis stridulatoriis subtiliter sculpturatis, sat distantibus; pygidio minute et crebre punctato, apice lævi; tibia antica dentibus tribus acutis aliisque minutis armata.

Long. 18·5–22 mm. Lat. max. 9·5–13 mm.

*Hab.* ASSAM; RANGOON; MALAY PENINSULA.

Black or piccous, elongate, oval. The head is coarsely rugose with the front bituberculate, and rather broad at the anterior margin, which bears two minute tubercles placed near together. The pronotum is almost imperceptibly punctured at the sides, with the lateral margins broadly curved and slightly narrowed anteriorly, the front angles acute and the hind angles obtuse. The scutellum is smooth. The elytra show a vestige of a punctured sutural stria and four pairs of lines of strong punctures, the first two pairs abbreviated behind. There are a few similar punctures in the intervals and the lateral and apical borders are strongly and irregularly punctured. The propygidium is scarcely punctured and the stridulating files rather distant and very finely sculptured. The pygidium is finely and densely punctured except towards the apex. The front tibiæ are furnished with three strong acute teeth and supplementary denticles.

♂. The front tarsus is slightly thickened and the inner claw very broad, with a strong basal tooth.

The species resembles *H. punctolineatus*, Fairm., (of which I have been able, by M. Lesne's kindness, to examine a co-type), but the marginal tubercles of the clypeus are placed closer together, the pronotum is less visibly punctured, the stridulating files are finer and farther apart, and the pygidium is more finely and closely punctured.

The following new species is remarkable for its extreme smoothness:—

*Heteronychus sacchari*, sp. n.

Niger, nitidus, latus, sat convexus, capite rugoso, antice acute bidentato, carina anteculari medio late interrupta; prothorace basi punctis anguste marginato, præterea toto impunctato, angulis anticis acutis, posticis obtusis; scutello parvo, vix punctato; elytris brevibus, post medium paulo ampliatis, lateribus apicibusque vix perspicue punctulatis, humerisque punctis nonnullis majoribus, dorso striarum vestigiis subtilibus, toto impunctato; propygidio minute punctato, lineis stridulatoriis angustis, pygidio basi dense rugoso, apice fere lævi; tibiis anticis dentibus tribus validis acutis aliisque minutis armatis.

Long. 17-19 mm. Lat. max. 11 mm.

*Hab.* BENGAL: Rungpur.

Black, extremely smooth, and rather short and broad. The head is rugose, with an inconspicuous carina before the eyes, broadly interrupted in the middle. The clypeus is produced into two rather sharp reflexed teeth. The prothorax is closely punctured along the extreme posterior margin, but is otherwise smooth: it is slightly narrowed in front and regularly rounded at the sides, with the front angles acute and the hind angles obtuse. The scutellum is small and vaguely punctured at the base. The elytra are short, widening a little behind the middle, with faint traces of striæ quite devoid of punctures. There are a very few punctures at the shoulders and the outer margins are very minutely punctulated behind. The propygidium is finely punctured and the stridulating files are narrow, not reaching the hind margin. The pygidium is densely rugose at the base and almost smooth on the apical half. The front tibiæ have three strong acute teeth and intermediate denticles.

In the male the prothorax is rather longer relatively to the elytra and the front tarsus and inner claw are only moderately thickened.

This species is reported as causing considerable injury to sugar-cane.

The most highly developed constituent of the *Heteronychus* group is one which has not at present been associated with this group at all. It is the *Scarabæus Itys*, Oliv., placed by Burmeister in his genus *Stypotrupes*, together with two other species of very different type. Although

according to the Lacordairean system the digitate hind tibiæ relegate this to another section, it is really a transition form nearly allied to *Heteronychus*, and it is necessary to form another new genus for it.

CLYSTER, n. gen.

Form cylindrical. Clypeus produced and truncate in front, the frontal suture bearing a short recurved horn in the male and two tubercles in the female. Mandibles straight at the sides and blunt in front, not produced beyond the clypeus. Front tibiæ armed with three strong teeth and secondary denticles: middle and hind tibiæ compressed and spinose, digitated at the end. Tarsi moderately slender, the front ones greatly thickened in the male, with the inner claw very broad and cleft at the end. Propygidium rather produced behind, with almost the whole median part finely striated.

Type. *Stypotrupes Itys*, Oliv. (*S. Ajax*, F. = *Dichodontus Renkeni*, Nonf.)

A second species of this genus is here described:—

*Clyster retusus*, sp. n.

Niger, nitidus, elongatus, convexus, capite rugoso, antice sat anguste producto, truncato; prothorace quam longitudinem parum latiore, omnino marginato, lateribus valde curvatis, antice contractis, angulis anterioribus acutis, posterioribus rotundatis; scutello parum punctato; elytris crebre et fortiter punctatis, lineis quatuor geminatis discoidalibus aliaque suturali, interstitiis lateribusque fortiter punctatis; propygidio medio paulo producto, subtiliter transverse strigoso, pygidio densissime punctato:

♂, capitis cornu brevi, recto apice obtuso; prothoracis basi et dorso postice lævibus, parte antica excavata aut decliva, rugosa, carinis obliquis duabus lævibus divisa:

♀, capite medio bituberculato; prothorace antice paulo impresso, rugoso.

Long. 21-29 mm. Lat. max. 11-15 mm.

*Hab.* ANDAMAN IS.; PENANG.

Black or piceous, elongated and rather convex. The head is coarsely rugose, narrowly produced in front, with the anterior edge nearly straight and slightly reflexed and the angles scarcely rounded. The prothorax is not much shorter than its width, with the sides gently and uniformly curved, narrowed in front, the anterior angles acute



and the posterior ones rounded. It is smooth in the middle but there are large scattered punctures at the sides. The scutellum bears a few small punctures, sometimes forming an angulate line. The elytra are closely punctured, the punctures forming four pairs of lines upon each and a single line bordering the suture, and the intervals are closely and irregularly punctured. The propygidium is gently produced in the middle and the whole median part covered with fine but broken striæ. The pygidium is densely punctured, and the punctures, at least at the sides, tend to coalesce transversely.

♂. The cephalic horn is short and nearly straight. The anterior half of the prothorax is scooped out and divided by two smooth oblique carinæ into three areas which are coarsely rugose. The elevated dorsal part ends abruptly in front and is sometimes slightly produced, but it never extends nearly as far as the front margin.

♀. There is a rudimentary excavation at the front margin of the prothorax and two slight tubercles behind it.

Of the two species of *Stypotrupes* placed first in the genus by its originator, one was described from a fragment and has since remained unknown, and of the second (*S. Endymion*), although described as long ago as 1789, the habitat remains yet unknown. The specimen from Kirby's collection (and now in the British Museum) referred to by Burmeister appears to be the actual type of Olivier.

Yet another species (*S. Candezei*, Voll.) which has no affinity with the others has been added to this genus. It is a form whose nearest ally is undoubtedly the peculiar genus *Oryctoderus*. With this it shares the elongate rectangular form, the broad transverse clypeus, produced in the male, the dilated mentum and the thickened front tarsi of the male. It differs in its strongly sculptured surface, the digitated hind tibiæ and the peculiar armature, etc., and I propose to call it

#### CERATORYCTODERUS, n. gen.

Both sexes of Vollenhoven's species have been well figured by him and no congener is so far known.

Fairmaire appears to have strangely confused the genera *Heteronychus* and *Phileurus*. While placing in the latter genus the three Kashmir species which I have already removed from it, he transferred *Phileurus chinensis* and

*morio*, of Falderman, to *Heteronychus*, the former being the insect which he has redescribed as *Trionychus Poteli*, while his *Trionychus assamensis* is *Phileurus planatus*, Wiede. Fairmaire has described the males of these, while the older writers have in each case described the females. *Trionychus*, or more correctly *Rhizoplatys*, is properly an African genus and, with these Oriental *Phileuri*, forms a link between the true *Phileurus* (which is confined to America) and the Pentodontides. The Oriental species form a well-defined genus, for which another new name must be found.

### EOPHILEURUS, n. gen.

Elongate and rather depressed. Head obtusely pointed in front, with a single median horn or tubercle. Mandibles produced in front, not notched or toothed. Maxillæ 3-toothed. Labium broad, with the palpi inserted at the inner side. Front tibiæ acutely 3-dentate, without secondary denticulation. Hind tibiæ truncate, strongly spinose. Tarsi slender, with the basal joint in the middle and hind legs produced at the outer edge. The prothorax is generally more or less excavated, at least in the male. The male has the front tarsi thickened and its inner claw broad and cleft; and the head bears a slender, though not long, horn.

The species belonging to this genus are:—*Phileurus planatus*, Wiede. (= *assamensis*, Fairm.), *chinensis*, Fald. (= *Poteli*, Fairm.), *platypterus*, Wiede., *morio*, Fald. *convexus*, Arrow, and the following undescribed forms:—

#### *Eophileurus perforatus*, sp. n.

Niger, nitidus, parallelus, haud longus, supra grosse, parum dense punctatus; prothorace antice sat crebre, postice laxe punctato, disco leviter longitudinaliter impresso, lateribus valde curvatis; scutello lævi; elytris seriato-punctatis, punctis annulatis, distinctis, interstitiis minutissime punctulatis; pygidio sat grosse, lateribus rugose, punctato:

♂, capite lævi, polito, cornu sat brevi, gracili, curvato, prothorace ad marginem anteriorem late sat leviter impresso:

♀, capite rugose punctato, medio tuberculato, prothorace æquali. Long. 19-22 mm. Lat. max. 9-10 mm.

*Hab.* SOUTHERN INDIA: Bombay, Mhow, Belgaum.

Our collection contains a series of male examples and a

single female. One specimen was found by Mr. H. E. Andrewes in the hollow stem of a decayed mango tree.

The species is black, shining and coarsely punctured, the punctures not very numerous on the prothorax, which has a slight longitudinal sulcus at its posterior part, and absent from the scutellum. The elytra bear rows of annulate, moderately-distant punctures and extremely minute punctulations in the interstices. The pygidium is coarsely punctured and the metasternum bears large deep crescentic impressions at the sides and rather fine punctures in the middle, and there are also fine and scanty hairs.

♂. The head is smooth and shining, with a simple slender horn, and the prothorax has a shallow broad impression behind the front margin.

♀. The head is rugosely punctured and bears a tubercle.

*E. perforatus* resembles *E. platypterus*, Wiede., but is rather larger and much less densely punctured, especially upon the prothorax, which is sparingly, though very coarsely, punctured and bears a longitudinal impression absent in the other species. The scutellum is without the large punctures present in *E. platypterus*. The male is most markedly distinguished by the head, which is smooth with a slender horn, while in the older species it is closely punctured and the horn is laterally compressed.

*Eophileurus cingalensis*, sp. n.

Niger, nitidus, latus, parallelus, supra dense varioloso-punctatus, capitis cornu brevi; prothorace brevi, lateribus valde curvatis; scutello confuse punctato; elytris grossissime seriato-punctatis, punctis annulatis, interstitiis minutissime punctulatis; pygidio grosse et rugose punctato:

♂, capite parum punctato, cornu brevi; prothorace leviter longitudinaliter impresso, ad marginem anteriorem paulo latius:

♀, capite prothoraceque crebre punctatis.

Long. 20-26 mm. Lat. max. 10-13.5 mm.

*Hab.* CEYLON.

This is a rather broad species, resembling *E. perforatus*, but larger, more closely and still more coarsely punctured. The prothorax is closely punctured all over and the punctures become confluent in front. The scutellum is confusedly punctured and the elytra are closely covered

with rows of very large ring-shaped impressions, the interstices minutely and scantily punctulated. The pygidium is coarsely and rather rugosely punctured and the metasternum is decorated with large crescentic impressions, except at the middle which is almost smooth. It bears only a few tawny hairs.

♂. The head is scantily punctured and bears a very short horn in the middle. The prothorax has a faint longitudinal impression which becomes a rather feeble semicircular fovea behind the front margin.

*Eophilcurus nilgirensis*, sp. n.

Niger, nitidus, latus, depressus, prothorace minute sat crebre punctato, lateribus valde arcuatis, angulis posticis fere acutis; scutello minute punctato; elytris crebre seriatim punctatis, punctis annulatis haud profundis; pygidio basi rugoso, apice leviter punctato:

♂, capite lævi, cornu haud longo; prothorace antice fortiter circulariter impresso, postice vix sulcato:

♀, capite prothoraceque antice transverse rugosis.

Long. 22-24 mm. Lat. max. 12.5 mm.

*Hab.* S. INDIA: Nilgiri Hills, 6,000 ft.

Collected by Captain A. H. Weld Downing and Mr. H. L. Andrewes, by whom the ♀ was dug up in the jungle. *E. nilgirensis* is very nearly related to *E. planatus*, Wiede., but much less finely punctured and the prothoracic fovea in the male is circular, extends in well-developed specimens considerably past the middle and is not bounded behind by distinct angulations. The prothorax is closely punctured, becoming rugose in front, and the sculpture is only a little coarser than in *E. planatus*. The sides are strongly rounded but the curvature does not quite reach the posterior angles, which are rather sharp. The scutellum is irregularly punctured. The elytra are closely covered with coarse annular punctures arranged in definite rows and there are a very few minute punctulations in the interstices. The pygidium is rugose at the base and scantily punctured at the apex and the metasternum is densely punctured and clothed with long tawny hair, except in the middle, where it is scantily punctured and bare.

It will be well, in passing, to call attention to an error in connection with certain species of *Phileurus* properly so-

called. Burmeister, in his description of *Phileurus verrax*, has included two species, the characters of the male being taken from one and those of the female from the other. The *P. verrax* of Dejean's Catalogue is an Argentine species and is peculiar for its very prominent smooth pygidium. It is this which Burmeister has described as the male. The female has the pygidium equally prominent and smooth, but its ventral part is slightly excavated, forming an overhanging ridge above, and the last ventral segment, as usual in the Dynastidæ, is broader and not emarginate at the apex as in the male. There is another species, occurring in Brazil, Guiana, Bolivia, Peru, etc., which closely resembles the Argentine form but has a flatter and more deeply grooved prothorax, the groove not widening into a large fossa in the male, as it does in the other species. The pygidium is only moderately convex and is very coarsely and thickly pitted in both sexes. This form has been described by Burmeister as the female of *P. verrax*. I desire to rename it—

*Phileurus Burmeisteri*, sp. n.

I prefer to apply the name of *P. verrax* to the Argentine species, although Burmeister has quoted the habitat of the other alone, because the name was first given (by Dejean) to an insect from Buenos Ayres, and because Burmeister has described both sexes of that species although mistaking the females for males of minor development.

My type of *P. Burmeisteri* is from Rio Janeiro.

The new genus which follows is necessary for an isolated and interesting African species as yet undescribed. It belongs to the Cyclocephalinae, one of the most characteristic Tropical American groups of beetles, of which it forms the only known representative in Africa. Like others of that group it very closely approaches the Rutelidæ both in appearance and structure.

RUTELORYCTES, new genus.

Form elongate, not very convex, with rather slender legs. Clypeus large, broad in front and not toothed. Head entirely unarmed. Labrum concealed, hardly corneous. Mandibles small, simple, not produced or notched. Maxillæ almost naked, armed at the inner edge with 6 long and sharp teeth: palpi moderately long. Labium

elongate, with a distinct, bilobed, strongly chitinised ligula. Prothorax entirely simple. Prosternum forming a very prominent finger-like process behind the front coxæ. Propygidium without stridulating apparatus. Front tibiæ 3-dentate, the four posterior ones narrow, spinose (not digitate) at the extremity. Basal joint of the tarsi not dilated.

♂. Clypeus shorter and broader. Front tarsi thickened, with the inner claw broad and minutely cleft.

*Ruteloryctes tristis*, sp. n.

Glaber, niger, nonnunquam lævissime æneus, elongato-ovatus, inermis, clypeo lato, antice reflexo, minute sinuato, rugose punctato, fronte fortiter laxè punctato; prothorace similiter punctato, lateribus leviter arcuatis; scutello haud acuto, minutissime punctato; elytris haud grosse, sat æqualiter, annulato-punctatis; pygidio minute et densissime punctulato; corpore subtus medio lævi, metasterni lateribus rugosis, abdominis lateribus irregulariter punctatis, transverse ciliatis:

♂, pygidio majore, convexo:

♀, elytrorum marginibus lateralibus ante medium obtuse angulatis, superficie postica minute et dense punctulata.

Long. 16-21 mm. Lat. max. 9-11.5 mm.

*Hab.* SIERRA LEONE; PORTUGUESE GUINEA: Bissao (Favarel).

There are several specimens in the British Museum and M. René Oberthür's collection.

It is very much like the species of the American genus *Dysscinctus*, to which it is closely related, and might be regarded as a representative of that genus which has strayed across the Atlantic. The prothorax is rather more closely adapted to the hind-body than is usually the case in *Dysscinctus* and its posterior angles are not rounded off. The pygidium also is larger, more convex and less prominent. Perhaps the most interesting and peculiar feature is one found only in the female, in which sex the whole of the posterior part of the elytra is closely and microscopically punctured.

Mr. Péringuey has made a genus (*Vencedus*), for *Heteronychus paradoxus*, Bohem., supposing his only example to be a male; but both genus and species are redundant, being based upon the female of the curious *Xenodorus Janus*, F., which occurs on the Gold Coast, in the Congo, Angola, Natal, etc.



*Heteronychus foveipennis*, Fairm., may be placed in the genus *Anodon*. It is probably not distinct from *Lonchotus muticus*, Burm. In addition to the last misplaced species, only three species of *Lonchotus* have been described, although they appear to be rather numerous. Two, which are represented in the Museum by series consisting of both sexes, are described here.

*Lonchotus punctatissimus*, sp. n.

Niger, vel nigro-piceus, convexus, modice elongatus, capite crebre rugoso, antice minute haud acute bidentato; prothorace baseos medio excepto dense punctato; scutello impunctato; elytris stria suturali crenata completa lineisque sex postice abbreviatis punctarum ocellatarum, punctis magnis crebris, externis magis irregularibus, interstitiis alternis punctis nonnullis, sculpturatis, lateribus laevibus, apicibus modice haud profunde punctatis; propygidio subtilissime transversim strigoso, pygidio sat minute punctato, apice fere laevi; metasterno creberrime rugoso et rufo-hirto:

♂, breviter acute cornuto, cornu recurvato; prothorace profunde sat anguste excavato, fossæ lateribus acute carinatis, antice et post medium utrinque obtuse dentatis, fundo undique transverse ruguloso.

Long. 25-27 mm. Lat. max. 14-15 mm.

*Hab.* CENTRAL MADAGASCAR: Ambohimombo Forest, 1,200 m.

This closely resembles *L. lentus*, Burm., but is larger and differs by the distinctly bidentate clypeus, more rugose head, and much more strongly and closely punctured pronotum, the excavation of which in the male is a little broader. The puncturation of the elytra is very similar, but rather more distinctly linear. The most strongly marked difference is to be found in the stridulating surface of the propygidium, which in *L. lentus* is comparatively coarse and in the present species is extremely fine.

*Lonchotus politus*, sp. n.

Niger, nitidus, convexus, sat breviter ovatus, capite dense punctato, antice obtuse acuminato; prothorace punctato, postice medio fere laevi; scutello impunctato; elytrorum parte antica late haud profunde punctata, stria suturali antice obsoleta, apicibus leviter punctatis, aliis locis laevibus; propygidio subtilissime transversim

strigoso, pygidio fere lævi, lateribus solum paulo punctatis; metasterni lateribus dense punctatis et rufo-hirtis:

♂, lateribus magis parallelis, capite breviter acute cornuto, cornu recurvato; prothorace profunde excavato, fossæ lateribus carinatis, antice et post medium utrinque obtuse dentatis, fundo haud fortiter rugoso.

Long. 22-25 mm. Lat. max. 12-14 mm.

*Hab.* S. MADAGASCAR: Fort Dauphin.

A number of examples, chiefly females, were collected by Mr. G. F. Scott-Elliot. This species also is much like *L. lentus*, Burm., and of the same size and shape, but is very readily distinguishable. It is remarkable for the feeble and scanty puncturation of the elytra, the punctures scarcely extending beyond the middle and not forming regular rows. The propygidium is very finely striated, as in *L. punctatissimus* and the pygidium almost smooth, although more punctured in the female than in the male, as in all the species. The prothorax of the male is more deeply and broadly excavated than in either of the other species I have named and the sides are more closely punctured than in *L. lentus*, but less so than in *L. punctatissimus*.

In the African genus *Pycnoschema* the pygidium and propygidium are generally densely covered with pubescence in the female and sometimes in the male also. In certain species the males exhibit traces in this region of a fine transverse striation on each side of the median line, representing the stridulating organ of *Lonchotus* and many other genera, although scarcely in a sufficiently perfect condition to be functional. In a new East African species, however, this structure is well developed. I have described this species as follows:—

*Pycnoschema musica*, sp. n.

Rufo-picea, nitida, elongata, subcylindrica, capite in utroque sexu acute cornuto, clypeo sat longo, parum punctato, medio dilatato, cantho fere quadrato, fortiter punctato; prothorace fortiter inæqualiter punctato, lateribus et dorsi medio parcius atque subtilius, undique valde marginato, angulis omnibus obtusis; scutello parcissime punctulato; elytris haud profunde geminatim striato-punctatis, interstitio primo marginibusque postice irregulariter sat crebre, reliquis parcissime, punctatis:

♂, capitis cornu longo gracili recurvato, fronte parce punctato; prothorace antice lato, lateribus paulo deplanatis, antice medio excavato lævi, dorso antice carinato, medio obtuse bidentato; propygidio medio subtilissime transverse strigoso, linea mediana lævi; pygidio convexo, subtilissime punctato-rugoso, medio minus dense; tarsis anticis crassatis:

♀, capitis cornu brevi, sed acuto, fronte fortiter punctato; prothorace antice magis angustato, crebre punctato, lateribus postice fere parallelis; propygidio dense fulvo-piloso; pygidio medio vix punctato, parum convexo.

Long. 19-24 mm. Lat. max. 9.5-11.5 mm.

*Hab.* NYASALAND: Kambole, Fwambo.

A series of specimens was collected between 1892 and 1895 and presented to the British Museum by Mr. W. A. Nutt.

The colour is a very deep shining chestnut and the form narrow and parallel-sided. The horn of a well-developed male is longer than in any other species of *Pygnoschema* known to me and very slender and strongly curved. The female has a short sharply-pointed horn and not, as in many of the species, a cusped carina. In the type (♂) the dorsal carina of the thorax is produced and emarginate in the middle, overhanging the anterior cavity, but in a smaller male it is quite feeble. The propygidium of the female is finely granulated and densely pubescent, but that of the male is quite bare, with two finely and transversely striated bands in the median part.

*Pygnoschema palpalis*, sp. n.

Castanea vel rufo-castanea, modice elongata, paulo depressa, sat nitida, supra grosse punctata, subtus longe fulvo-pilosa, metasterni medio crebre punctato, lateribus subtiliter rugosis; palporum omnium articulis ultimis magnis:

♂, capite punctato-rugoso, medio læviore, cornu brevi armato, ante oculos sat late producto; prothorace lato, supra undique grosse punctato, antice retuso, margine supero carinato, medio obtusissime biangulato, lateribus post medium valde rotundato-angulatis, basi leviter trisinuatis; scutello minute punctato; elytris post medium lævissime dilatatis, punctis grossis lateraliter irregularibus sat densis, medio geminato-seriatis, punctulisque minutis interspersis; pygidio longe fulvo-hirto:

♀, capite rugoso, medio transverse carinato, carina medio vix

tuberculata ; prothorace dense sat grosse punctato, lateribus medio minus angulatis ; clytris grosse punctatis, punctis aliquibus indistincte geminato-seriatis, punctulis minutis interspersis ; pygidio subtiliter punctato-rugoso, nudo.

Long. 12-14 mm. Lat. max. 6-7.5 mm.

*Hab.* ABYSSINIA ; UGANDA, Fort Ternan ; BRITISH EAST AFRICA, Naitolia ; UPPER CONGO.

It is a small species which seems to be nearly related to *P. rudis*, Raff., described from a single female, but the prothorax has no trace in that sex of the bidentate dorsal carina found in *P. rudis*. The punctures of the head, prothorax and elytra are extremely coarse and annulate, those of the middle of the elytra forming double rows, which are rather indistinct in the female. The transverse carina upon the head of the female is scarcely visibly tuberculate. The last joint of both the maxillary and labial palpi is very large and deeply channelled in the male.

*Phyllognathus stricticeps*, Fairm., is a species of *Pycnoschema*, the narrow constricted clypeus from which it is named being the principal differential feature of the genus.

The species of the genus *Temnorhynchus* are very feebly differentiated from one another and the difficulty of identifying them is not diminished in the case of the South and East African forms by the fact that several authors have dealt with them without apparent knowledge of each other's work. The most widely distributed of all is that described by Fairmaire in 1868 as *T. antiochus*, which appears to range from Abyssinia to Natal. It is said by Fairmaire to be the *Coptorrhinus antiochus* of Dejean's Catalogue, but the latter is a Senegal insect, and, according to a specimen from the Dejean Collection in the British Museum, is the form called by Fairmaire *T. Diana*, Beauv. The East African insect was named *T. Diana*, var. *zansibaricus* by Kolbe in 1887 and in 1897 was quoted by him as *T. sansibaricus*, Kolbe. Finally Mr. Péringuey in 1900 renamed it *T. Faurins*. He also ascribed to it, I think rightly, the insect described and figured by Klug as the female of his *T. clypeatus*.

The genus *Podalgus* has been the subject of very great confusion. It occurs first in Dejean's Catalogue for the undescribed West African species *P. cuniculus*, and genus

and species were first described by Burmeister, who quoted the genus as *Podalgus*, Dej., and added to it a number of American insects of which he afterwards transferred most to a new genus, *Ligyrrus*. In 1859 Reiche, regarding Burmeister's first species, *Podalgus bonariensis*, as the type of the genus, renamed the African one *Vertumnus cuniculus*, employing, however, a generic name already preoccupied. Lacordaire had previously confined *Podalgus* to *cuniculus* alone and observed that Burmeister's *P. bonariensis* and *P. obsesus* belonged to a new genus. The latter about the same time became the type of Leconte's genus *Aphonus*. I consider that *P. cuniculus*, Burm., should undoubtedly be taken as the type of *Podalgus*, which is a very distinct genus peculiar to the desert tracts of Northern Africa and Western Asia. I have seen examples from the Punjab, Bokhara, both shores of the Red Sea, Abyssinia and Northern Nigeria, and there is a remarkable degree of similarity of form and sculpture in all. The Bokhara form has been named *Crator infantulus* by Semenow, but Fairmaire has pointed out that this generic name also is redundant.

*Podalgus bonariensis*, Burm., is not congeneric with *Aphonus obsesus*, Burm., as Lacordaire believed, and although not transferred to *Ligyrrus* by Burmeister himself on account of the absence of a stridulating patch on the elytron, I have found no other reason for its exclusion. Its general form and features are those of *Ligyrrus* and the margins of the elytra are closely studded beneath with minute tubercles which no doubt correspond to the stridulating file of typical species.

Three species treated by Burmeister as a section of *Dyscinetus* (*D. rostratus*, Burm., *Zoilus*, Oliv., and *nasutus*, Burm.) have a stridulating patch beneath each elytron exactly like *Ligyrrus*, and the form of the head and thorax also show a greater degree of relationship to that genus than to *Dyscinetus*. They really form a quite distinct genus, which is characterised as follows:—

#### OXYLIGYRUS, n. gen.

Form cylindrical. Head acuminate in front, with the tip sharp and reflexed, and the frontal suture marked by a carina interrupted in the middle. Mandibles not toothed externally, with the apices straight and slightly prominent. Prothorax more or less impressed and tuberculate behind the front margin. The inner surface of the

elytra bearing a stridulatory area as in *Ligyrus*. Legs rather short and stout, the front tibiæ bearing three short, equal, and closely set teeth at the outer edge, the four posterior tibiæ flattened. Tarsal joints similar.

♂. Front tarsi thickened and contracted, with the penultimate joint produced into a broad striated plate and the inner claw thickened and feebly cleft.

Type, *Chalepus rostratus*, Burm.

Mr. Linell used the name *Pseudoryctes* in 1898 for a new genus which he formed for *Oryctes patagonicus*, Waterhouse, but as the same name was adopted in 1873 for a very different genus of Australian Dynastidæ I propose to substitute NEORYCTES for the South American genus.

The Australian genus *Adoryphorus* was formed by Mr. Blackburn for a single species of Burmeister's (*Dasygnathus Couloni*) and both authors confess ignorance of the male, but the slight tubercle at the back of the head, mentioned in both the very brief descriptions, is distinctive of the male and it therefore seems that both entomologists, looking for some more salient indication of that sex, described the male of this insect as the female. As our collection contains a good series of both sexes I may supplement the few published characters by giving the sexual distinctions. The male is parallel-sided and the female ovoid, the body dilating from the clypeus to near the end of the elytra. In addition to the tubercle upon the vertex of the head in the male, the clypeus is shorter, and the prothorax is much shorter and relatively broader. As usual in the Dynastidæ the last abdominal segment is more or less triangular in the female and emarginate behind in the male.

The essential features by which this genus differs from *Dasygnathus* have not been pointed out, and when the species of this large Australian group are more fully known it may perhaps not be possible to retain it.

Mr. Blackburn is probably right in supposing *Scapanes solidus*, Burm., to be the insect for which he has made another genus, *Asemantus*, but he is not right in calling it *Asemantus subæqualis*, Hope. I have ascertained the type of the latter (in the Oxford Museum) to be the same species as that of *S. depressus*, Hope, described at the same time, and even an individual of the same sex (♀).



Indeed the respective descriptions indicate no difference and a suspicious similarity of terms is only partly avoided by a different arrangement of phrases. Although the type cannot be certainly identified, *S. Adelaidæ*, Hope, appears to be also the same species. The form of the front tarsus of the male appears to be the only means of distinguishing *Asemantus* from *Semanopterus*, for the first hind tarsal joint, also mentioned by Mr. Blackburn, is of quite typical form. Except for very strong reasons it is certainly objectionable to found genera upon characters only present in one sex and I am not able to recognise this genus.

Another Australian Dynastid, the *Scarabæus barbarossa*, Fabricius, has never been assigned its proper systematic position, but has been catalogued provisionally under the name of *Oryctes*, like other unplaced species, although it is quite unlike the members of that genus. It has most affinity with the true *Scapanes*, with which it agrees in the absence of propygidial stridulating apparatus, in the long slender tarsi and very spinose middle and hind tibiæ. Although it would not do violence to any essential character of that genus to include it, its very different outward form, the almost complete absence of sexual dimorphism, together with differences in the structure of the legs, maxillæ, etc., render it necessary to form for it a genus, which may be defined as follows:—

#### HAPLOSCAPANES, n. gen.

Form rather broadly oval, with recurved lateral margins to the pronotum and elytra. Clypeus tapering, bicuspidate at the apex. Mandibles nearly straight at the sides and blunt and prominent at the tips. Maxillæ slender, blunt at the end and without teeth. Labium rather long, regularly narrowing to the points of insertion of the palpi and slightly widening beyond. All the palpi long and slender. Front femora scarcely toothed at the front margin. Front tibiæ armed with three very acute teeth; middle and hind tibiæ produced apically into very long acute spines. All the tarsi long and slender.

♂. Head armed with a short, but slender and acute, horn.

♀. Head armed with a conical tubercle.

There appears to be only a single species, which is common in the Northern territories of South Australia and Queensland. The original Fabrician specimens, now

in the British Museum, are a male and female of very large size. The larva was described by Mr. Blackburn in 1899 (Trans. Roy. Soc. S. Australia, xxiii, p. 27).

The genus *Scapanes* is represented by two very similar species, of which the differences were first pointed out by Macleay (Proc. Linn. Soc., New S. Wales, 1884, p. 703), who determined the shorter and more coarsely punctured form as *S. australis*, Boisd., while to the other he gave the name of *S. politus*. The latter, however, is undoubtedly *S. Menaleas*, Lap., and in all probability is the true *S. australis*, Boisd., also, as considered by the compilers of the Munich Catalogue. I have not discovered the whereabouts of Boisdual's type, which is not in the Paris Museum, but it is this species which was named *S. australis* in Laferté's collection, which comprised Dejean's, etc., and it was taken by Wallace at Dorey, the locality of the type. The shorter species (Macleay's *S. australis*) has recently been named by Herr Sternberg *Scapanes grossepunctatus*, and if I am right the synonymy of the two is as follows:—

*S. australis*, Boisd., Voyage de l'Astrolabe, Col., p. 158, Pl. IX, fig. 4.

*Menaleas*, Lap., Hist. Nat., II, p. 114.

*politus*, Macl., Proc. Linn. Soc. New S. Wales, 1884, p. 703.

*S. grossepunctatus*, Sternb., Stett. Ent. Zeit., 1908, p. 6.  
*australis*, Macl. (nec Boisd.) *l. e.*

A male specimen of the second species from New Hanover in our collection, which measures 57 mm. in length to the end of the clypeus, has the puncturation of the elytra very sharp and coarse, the cephalic horn rather dilated laterally from the base to the anteapical tooth and the thoracic horns as long as in the best-developed males of *S. australis*, Boisd., but much farther apart. As I have no doubt this represents a local race I call it

*S. grossepunctatus*, var. *dilaticornis*.

The following new genus (also Australian) is peculiar for a close resemblance to the Rutelid genus *Anomala* (which, curiously, is indigenous to every great division of the globe except Australia).

#### ANOMALOMORPHA, n. gen.

Form broadly oval, rather depressed, with the legs slender, the

front tibiæ tridentate, the middle and hind tibiæ truncate at the end, but not dilated, and the tarsal joints equal and slender. Mandibles very small, concealed by the clypeus, rounded at the front and sides, and without teeth. Maxillæ without teeth, the terminal (outer) lobe blunt and ciliated. Mentum long and tapering, bidentate in front. Last joint of all the palpi long and slender. Clypeus very short, with the front margin straight and reflexed. Head and thorax entirely unarmed in both sexes. Prosternum with a slender, sharply-pointed post-coxal process.

♂. The clypeus is a very little shorter, the front tibiæ less strongly toothed, all the tarsi much longer and the abdomen reduced and contracted.

The National collection possesses a number of males belonging to three species, but only a single female, which sex is evidently much rarer than the other. It is an interesting and isolated genus, exhibiting several features foreign to the Dynastidæ in general. The elongation of the tarsi of the male in other genera is a concomitant of the fullest development of armature on head and thorax, whereas genera in which such armature is absent are usually characterised by the opposite condition of contraction of the male tarsi.

*Anomalomorpha anthracina*, sp. n.

Nigra, nitida, corpore subtus, pedibus antennisque testaceis, capite crebre punctato, clypeo brevi, antice recto, linea frontali vix elevata angulata; prothorace minute haud crebre punctato, lateribus marginatis, regulariter et fortiter arcuatis; scutello rugose punctato; elytris profunde punctato-striatis, lateribus grosse irregulariter punctatis, marginibus lateralibus reflexis, apicalibus fere rectis, angulis sat acutis; pygidio minute haud dense punctato.

Long. 18-20 mm. Lat. max. 10-11 mm.

*Hab.* QUEENSLAND: Moreton Bay.

There are two males and a female of this in the British Museum. It is shining black with reddish-yellow legs and underside, broadly oval and not very strongly convex. The head is strongly punctured, the prothorax finely, and the elytra are very coarsely and deeply punctate-striate.

*Anomalomorpha geotrupina*, sp. n.

Robusta, nigra, nitida, corpore subtus pedibus antennisque rufo-

testaceis, capite postice fortiter punctato, clypeo parum punctato, valde excavato, margine fere rotundato, linea frontali vix angulata elevata; prothorace brevi, sat minute punctato, late marginato; scutello rugose punctato; elytris grosse punctato-striatis, lateribus parcissime punctatis, angulis suturalibus rectis; pygidio leviter punctato, angulis lateralibus rectis.

Long. 18 mm. Lat. max. 11.5 mm.

*Hab.* QUEENSLAND.

I have seen only a single (male) specimen. It closely resembles *A. anthracina*, but the clypeus is more deeply excavated, a little longer and more rounded in front and less strongly punctured. The prothorax is a little shorter and more broadly margined, the elytra are more meagrely punctured at the sides and the pygidium is more distinctly and uniformly punctured.

*Anomalomorpha flavipes*, sp. n.

Rufo-picea, corpore subtus pedibus antennisque flavidis; capite fere rugose punctato, clypeo lato, margine late reflexo; prothorace subtiliter punctato, lateribus regulariter arcuatis, marginatis, antice paulo approximatis; scutello parce sat grosse punctato; elytris profunde punctato-striatis, lateribus modice confuse punctatis, marginibus lateralibus arcuatis, reflexis, posticis arcuatis, angulis haud acutis; pygidio basi minute sat crebre, apice parcissime, punctato.

Long. 15-16 mm. Lat. max. 9 mm.

*Hab.* QUEENSLAND: Rockhampton, Mackenzie River.

We possess five male specimens of this species, which is also very nearly related to the *A. anthracina*, but rather smaller, less black above, and paler upon the underside and legs. The form and sculpture are almost the same, but the prothorax is a little longer and more tapering in front and the scutellum is shining and decorated only with a few large punctures. The apical margins of the elytra are more rounded and the angles less sharp.

A genus *Blabephorus* was founded by Fairmaire in 1898 upon female specimens from Sumatra and Labuan. The description is not only entirely insufficient but rather misleading, and I am indebted to M. Lesne, of the Paris Museum, for kindly making comparisons with the type specimen which have established its identity with a common and widely distributed insect whose long any-

mity shows the remarkable neglect from which this group has suffered. It is a singular and interesting form which presents a curious resemblance to the genus *Phyllognathus* and supplies a link between the *Heteronychus* group of genera in which the prosternum has a columnar vertical process behind the front coxæ and the *Oryctes* group in which there is no prosternal process. In *Blabephorus* there is a large tumid elevation. *B. pinguis*, Fairm., is chestnut-coloured, rather broad in form, with the thorax more or less excavated in both sexes, and without stridulating apparatus on the propygidium. The front tibiæ are sharply quadridentate, the middle and hind ones strongly carinate outside and digitate at the end. The mandibles are largely exposed, acute in front and roundly dilated at the sides. The maxillæ are armed with three sharp lateral teeth and the mentum is rather broad. The male has a slender, strongly recurved horn, the thoracic excavation is very large and deep and each lateral edge drawn into a point, and the front tarsi and claws are not thickened.

This, the only known species of the genus, is found in North and South India, Burma, the Malay Peninsula, Borneo, Labuan and Sumatra.

*Trichogomphus mongol*, sp. n.

Niger, nitidus, elongatus, sat parallelus, capite antice bicuspidato ; prothorace postice grosse rugoso ; elytris lævissimis, stria suturali punctisque nonnullis prope margines anticum atque externalem ; pygidio basi grosse punctato atque rufo-hirto :

♂, capite cornu curvato simplici postice compresso armato ; prothorace subquadrato, angulis posticis valde obtusis, postice lobato, late elevato, parte elevata antice breviter bituberculata, subtus distincte excavata, tuberculis duobus etiam ante medium lateralibus.

Long. 33-47 mm. Lat. max. 18-25 mm.

*Hab.* CHINA: Hong Kong, Da-laen-saen ; CAMBODIA: Laos ; BURMA: Catcin Cauri.

This species was mistaken, both by Burmeister and Fairmaire, for *T. Martabani*, Guér., and the latter under that impression redescribed that species by the name of *T. tonkineus*. It is probable that he relied upon Burmeister's description for the identification of Guérin's species, since the original description and figure leave no

possibility of mistake when the two forms are seen together. They are extremely similar, but distinguishable at once by the strongly punctured elytra of *T. Martabani*, which has two double series of punctured striæ, with similarly punctured interstices, whereas in the new species these are only impressed unpunctured lines, except at the extreme base. The posterior angles of the prothorax are also more obtuse in the male of *T. mongol*, and in well-developed specimens the posterior elevation is more hollowed out in front, the sides being sharply carinate. The average size is distinctly less.

*T. mongol* appears to have a much wider area of distribution than *T. Martabani*, the latter ranging westward, while the former ranges eastward, from Burma.

*Trichogomphus acuticollis*, sp. n.

*T. mongoli* valde affinis et similiter sculpturatus, sed elytris ad margines extremos laterales distincte striato-punctatis, prothoracis lateribus arcuatis antice productis, angulis anticis acutis, latitudine maximo fere ante medium :

♂, *T. mongoli* similiter armato, sed prothoracis elevatione postica vix bicuspidata, fere acuminata.

Long. 38-45 mm. Lat. max. 20-24 mm.

*Hab.* TENASSERIM: Dawnat Range, 1,500 ft.

Two male specimens of this were collected and presented to the Museum by the late Lord Dormer. It very closely resembles the two species just referred to. It has the smooth elytra of *T. mongol*, but in addition to similar well-punctured areas at the base and apex of each there are two or three lines of punctures at the extreme lateral margin, which are scarcely visible in that species. The principal difference, however, is in the shape of the prothorax, which has not at all the quadrate form which is so marked a feature of *T. Martabani* and *T. mongol*, but has the lateral margins produced in front, making a forward-directed angle. The sides are more regularly curved behind and the widest part of the prothorax is at the middle instead of behind it. The scutellum is very scantily punctured.

These differences will probably serve to distinguish both sexes, but I have not seen the female. In the well-developed male the prothorax is very strongly lobed



behind and elevated into a hump, but this is not broadly forked in front, but bluntly pointed, the point showing only a trace of bifurcation. In an undeveloped male the armature is reduced to a condition almost indistinguishable from that of similar examples of *T. mongol*.

PACHYORYCTES, n. gen.

Form very robust. Clypeus tapering and bidentate at the end. Mandibles very prominent, blunt in front and sinuated at the lateral margins. Maxillæ stout, broad at the extremity, where they are armed with a series of about 8 minute teeth; palpi moderately long, with the 1st joint slender, the 2nd and 3rd inflated and the 4th long. Mentum thick and rather broad: labial palpi with the last joint large and the preceding ones very small. Front tibia strongly and almost equally tridentate, middle and hind tibiæ strongly spinose at the extremities. Tarsi moderately long and slender, with the first similar to the succeeding joints. Prosternal process broad, not long. Propygidium without stridulating surface.

♂. Head armed with a long, transversely flattened, strongly curved horn. Prothorax strongly retuse in front. Legs similar to those of ♀.

♀. Head armed with a blunt tubercle. Prothorax strongly punctured.

*Pachyoryctes solidus*, sp. n.

Rufo-piceus, robustus, subtus parce rufo-pilosus; clypeo bidentato; prothoracis lateribus arcuatis, angulis anticis acutis; scutello rugoso, apice obtuso; elytris sparse minute punctulatis, punctorum serie irregulari juxta-suturali; propygidio pygidioque crebre fortiter punctatis:

♂, capite cornu longo, fortiter recurvato, postice planato, armato; prothorace sparse punctato, antice retuso, postice sat distanter bituberculato:

♀, capite rugoso, medio tuberculato; prothorace antice rugoso, postice grosse punctato.

Long. 40-48 mm. Lat. max. 23-26 mm.

*Hab.* BURMA: Carin Cheba, 2,700-3,300 ft.

Two males and a female were collected by Fea. They are chestnut-black, rather smooth but not very shining, with minute scattered punctures above and scanty reddish hairs upon the sternum, sides of the abdomen and legs.

♂. The body is very robust and convex. The head is triangular and sparingly punctured and carries a long strongly recurved horn, the posterior face of which is flattened and slightly excavated. The pronotum is minutely and sparsely punctured, strongly curved at the sides, with the front angles prominent and acute. The prothorax, except at the posterior and lateral borders, is retuse, nearly flat, and very shining, with some large punctures before and behind the posterior margin of the flattened part. This margin is slightly interrupted and depressed in the middle and elevated at each side into a more or less sharp tooth. The scutellum is rugose, short and very bluntly angulated. The clytra have a minute scattered puncturation and a single line of larger punctures upon each side of the suture. The apical margins are more thickly, and the pygidium and propygidium strongly and closely punctured.

♀. A little narrower and less convex. The head is very coarsely and rugosely punctured and armed with a slight tubercle. The prothorax is coarsely punctured, the punctures being distinct behind and confluent and rugose in front, and the front angles are less prominent than in the male. The scutellum is rather more pointed and the clytra a little longer.

The male has the appearance of a stout and broad *Oryctes*, while the female greatly resembles that of a *Trichogomphus*, but the structure of the hind tarsi, the maxillæ, the horn of the male, etc., show it to have a truer relationship with the *Chalcosoma* group, although the absence of any elongation of the legs of the male forms an important distinction from *Chalcosoma*, *Eupatorus*, etc.

Two species of *Eupatorus* are enumerated in the Munich Catalogue, but they are in reality only colour varieties of a single species *E. Hardwickei*, Hope. The clytra of this vary in colour from light mahogany to black, but the outer margin nearly always remains pale, and the variety which is entirely black except this pale clytral border constitutes the var. *Cantori*. Another species occurs in Burma, Siam and Tonkin and appears to be still undescribed. Herr Nonfried has described a specimen from Kashmir by the name of *Eupatorus Atkinsoni*, but the chief difference which he finds between it and *E. Hardwickei* is in the greater breadth of the part which he calls in his Latin diagnosis the quadridentate labrum and later on the galea,

and which really consists of the bidentate clypeus together with the tips of the mandibles. As the extent to which the mandibles of different individuals are opened is not regarded by competent entomologists as a character of weight in the separation of species, and as application to the author for assistance in resolving the matter has not been successful, the name *E. Atkinsoni* must be regarded as a synonym of *E. Hardwickei*, Hope. The locality seems to preclude its reference to the species which is here described.

*Eupatorus gracilicornis*, n. sp.

Crassus, elongatus, niger, elytris flavis, sutura, marginibusque externis angustissime nigris:

♂, nitidus, capite longissime et gracilissime cornuto, prothorace sat longe 4-cornuto, cornubus omnibus fere æqualibus, curvatis, duobus lateralibus prope angulum medianum, duobusque dorsalibus:

♀, inermis, prothorace creberrime punctato, lateraliter rugoso, elytris subtiliter coriaceis, punctatis, postice paulo pubescentibus.

Long. 48-70 mm. Lat. max. 25-35 mm.

*Hab.* ASSAM, Jaintia Hills; BURMA, Shan States; SIAM, Chengmai; TONKIN, Dong-Van.

Black, with the elytra straw-coloured except at the sutural and extreme outer margins, which are dark. The form and colouring are almost those of *E. Hardwickei*, but the body is rather more elongate, and the elytra are normally lighter in colour and without a paler border.

♂. The armature is similar to that of *E. Hardwickei*, but all the horns are more slender, that of the head in the largest specimens reaching a length of 40 mm. The anterior thoracic horns are much longer, being fully as long as the posterior pair, strongly curved, and arising farther back than in the other species, giving the prothorax the appearance of being more produced in front.

♀. This is extremely like that of the older species, but besides the greater elongation and paler elytra, the latter are minutely pubescent only at the posterior part and the pronotum is more strongly sculptured and closely rugose at the sides.

The curvature and direction of the horns of the male vary very much. The cephalic horn is sometimes very strongly and sometimes only slightly curved backwards

and the anterior thoracic horns generally diverge considerably but sometimes slightly converge. In small specimens the dorsal horns may completely disappear.

I have seen a considerable number of examples, most of them males.

*Eupatorus birmanicus.*

Convexus, sat longe ovatus, piceus, opacus, coriaceus, corpore subtus parcellissime rufo-hirto :

♂, clypeo acute bidentato, cornu gracili acuto, fortiter recurvato, armato ; prothorace vix punctato, lateribus parum arcuatis, postice fere parallelis, antice valde approximatis, angulis anticis acutis, utrinque pone angulos anticos acute productis cornubusque duobus dorsalibus ante marginem posticam spatuliformibus approximatis retro directis, pedum anticorum femoribus vix dentatis, tibiis paulo elongatis, dentibus acutis transversis denteque infero verticali, tarsis vix elongatis.

Long. 45-48 mm. Lat. max. 25 mm.

*Hab.* BURMA : Moulmein, Mergui.

The colour is a very dark chestnut, approaching black, and the form convex and moderately elongate. The upper surface is coriaceous and scarcely shining, the scutellum and elytra quite opaque and the pygidium and propygidium finely rugose and minutely setose. The lower surface is very scantily furnished with tawny hairs.

♂. The head is bidentate in front and bears a long slender and sharply-pointed horn, strongly curving backwards in the basal half and afterwards almost straight. The prothorax is about as long as it is broad, with the sides nearly parallel behind and strongly tapering in front, the margins produced into a sharp point on each side just behind the front angle and the dorsal part bearing a pair of spatulate horns placed close together behind the middle. These are convex on their posterior face and concave on the anterior, they slope backwards and their tips almost meet. The legs are not long, but the front tibiæ are slightly elongate and bear three nearly equal acute teeth set at right angles and a vertical tooth on the lower surface at the extremity. The front femur has an irregularly rounded laminar projection near the middle of the anterior margin.

A second ♂ specimen of low development shows the

remarkable tendency to dimorphism seen in males of other genera of the group. The size is little less than that of the type specimen, but the cephalic horn is only a third of the length and bifurcated at the end, and the thoracic horns are represented by a pair of nodular processes occupying the same position, but showing no indication of the very peculiar form assumed in its fuller development.

I have not seen the female.

This insect is exceedingly like *Alcidosoma siamense*, Lap., in all respects except the position, shape and direction of the thoracic horns. It is a little more elongate, the margins of the prothorax are rather straighter and more parallel behind and its surface more smooth and shining, and the pygidium is more closely rugose.

In making the genus *Alcidosoma*, Laporte declared that it was not in his opinion really entitled to generic separation from *Chalcosoma*, but it is still more closely related to *Eupatorus* and males of *A. siamense* in a certain stage of development are almost identical in form to *Eupatorus Hardwicki*, Hope, differing only in the fine sculpture of the surface of the body. They agree also in the broad multidentate outer lobe of the maxilla, which is very different from the acuminate form of that of *Chalcosoma*, in which the mentum is also much longer and narrower. *C. Beccarii*, Gestro, is an intermediate having in my opinion more points of affinity with *Eupatorus* than with *Chalcosoma*. The mentum is of the same form and the maxillæ are blunt at the end, but with a sharp tooth beneath, which is not found in the other species. The male does not possess the anterior thoracic processes of *Eupatorus*, but the small importance of the sexual armature is shown by the curiously different forms assumed in *E. siamensis* and *E. birmanicus*, which are so closely alike in all other respects. The discovery of other forms may yet bridge the interval by which *Chalcosoma* is divided from *Eupatorus*, but for the present the form of the mentum and maxillæ, together with the great elongation of the legs in the male, serves to distinguish *C. Atlas*, L. (= *Phidias*, Bl.) and *C. Mollenkampii*, Kolbe, while I refer to *Eupatorus* the following species:—*E. Hardwicki*, Hope (with var. *Cantori*, Hope), *gracilicornis*, Arrow, *siamensis*, Lap., *birmanicus*, Arrow, *Beccarii*, Gestro, and the following Australian species, which, although in many respects the most divergent of all, has considerable similarity to *E. Beccarii*.

*Eupatorus australicus*, n. sp.

Nigro-piceus, robustus, sat late ovatus, clypeo rugoso, obtuse acuminato; prothoracis lateribus rugose punctatis, marginibus a basi ad apicem valde arcuatim convergentibus; scutello grosse punctato; elytris subseriatim punctatis, punctis irregularibus sat crebre interspersis; pygidio dense punctato et breviter setoso; pedum anticorum femoribus inermibus, tibiis oblique 3-dentatis:

♂, capite cornu compresso recurvato intus minute dentato armato; prothoracis dorso utrinque recte et acute antrorsum producto; tibiis anticis leviter elongatis, dentibus haud validis:

♀, capite minute sat acute tuberculato; prothorace fortius rugoso-punctato, medio leviter canaliculato, postice utrinque laevi.

Long. 41-53 mm. Lat. max. 24-30 mm.

*Hab.* QUEENSLAND.

The colour is a very deep brown and the form oval and compact, well punctured but moderately shining. The clypeus is bluntly acuminate, and not distinctly bifid. The mandibles are rather broad and leaf-like, strongly incurved at the sides and not straight as usual. The maxillary lobe is slender and without teeth.

♂. The head is armed with a compressed horn, not very long or slender, with its anterior face slightly dilated and the posterior part rather compressed, and bearing a tooth beyond the middle except in poorly-developed specimens. The prothorax bears a stout and sharply-pointed but not very long horizontal horn on each side of its dorsal part, and the median and posterior part is smooth and the sides rugosely punctured.

♀. The head bears a slight sharp tubercle and the prothorax is feebly channelled along the middle where, as well as at the front and sides, it is rugosely punctured.

*Lycomedes Ohausi*, sp. n.

Sericeus, rufo-olivaceus, variabile pallido-nubilatus, prothoracis lateribus antice acute angulatis, post medium geniculatis; elytris deplanatis, sat vage punctatis, lateribus ad medium fere parallelis, deinde conjunctim semicircularibus:

♂, clypeo recto, angulis lateraliter acute productis, cornu gracili, apice acute bifido; prothoracis cornu lato clavato, antice profunde excavato, postice leviter impresso:

♀, inarmato, prothorace grosse et crebre punctato, haud sericeo.

Long. 26-31 mm. Lat. max. 18 mm.

*Hab.* ECUADOR, Rio Casanga (2,500 m.).



A series of examples were taken by a correspondent of Dr. Fr. Ohaus upon a flowering "*Schling*" plant.

This species is very closely related to *L. Burmeisteri*, Wat., from which it differs markedly in the armature of well-developed males, but in minute particulars only in females and undeveloped males. The general form is a little less broad and flattened, the elytra not widening at all behind the middle as in the other species. The front angles of the prothorax are more prominent and the lateral angulations rather less prominent and situated a little further back. This applies to all specimens of both sexes.

In the male the prothoracic horn, which in *L. Burmeisteri* is broad at its base and somewhat narrows to its extremity, is club-shaped, being constricted near the base and swelling out at the tip, where the sides bend over, producing the appearance of a bulb when seen from behind. It is less broadly and deeply impressed at the base behind than in the allied species. The clypeus is more angulated on each side than in *L. Burmeisteri*, but the cephalic horn is not different. In small males with only a rudimentary thoracic horn the club-shaped form is not seen.

I have seen 16 examples, 11 of which are males.

In a recent paper (Ann. and Mag. Nat. Hist. (7), XIX, 1907, p. 357) I have suggested the transference of the genus *Oryctomorphus* from the Dynastidæ to the Rutelidæ. I consider it desirable to take the same course with two other aberrant genera hitherto regarded as belonging to the Dynastidæ, viz., *Peltonotus* and *Pachylus*. These are widely different one from the other, but agree in having a well-developed externally-visible labrum and unequal claws upon all the feet, and in *Pachylus* one claw of each pair is toothed. These are features characteristic of the Rutelidæ, but the genera are very aberrant and must occupy an isolated position in any family to which they are referred.

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